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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/700,467	11/05/2003	Masayuki Tajiri	4074-10	8801

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ARLINGTON, VA 22203

EXAMINER

LAM, DAVID

ART UNIT	PAPER NUMBER
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2827

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/700,467

Applicant(s)

TAJIRI, MASAYUKI

Examiner

David Lam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-6, 11-13, 27 and 29-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The office action is in response to amendment file on 7/24/06.
 - Claims 1, 7-10, 14-26, 28 have been cancelled.
 - Claims 2-6, 11-13, 27, 29-35 are pending in the application.

Allowable Subject Matter

2. The indicated allowability of claims 2-6, 11-13, 27, 29-35 in the previous office action is hereby rescinded due to a revealed new prior art. The Examiner regrets any inconvenience have caused.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 2, 11, 27, 30-31, 35 are rejected under 35 U.S.C. 102(e) as being anticipated by Admitted Prior Art (APA).

Regarding to claims 2-4, 11, the Admitted Prior Art (APA) discloses a nonvolatile variable resistor comprising: a first electrode (1) and a second electrode (3) facing each other

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and formed on a substrate (9); a nonvolatile variable resistance body (2) formed between the first electrode and the second electrode, wherein the first electrode and the second electrode face each other in a direction of a surface of the substrate wherein the nonvolatile variable resistance body is formed on an outer surface of the first electrode, and the second electrode is formed on an outer surface of the nonvolatile variable resistance body; wherein the first electrode is a columnar and the nonvolatile variable resistance body is made of manganese oxide of a perovskite structure; wherein the nonvolatile variable resistance body is made of manganese oxide of a perovskite structure; wherein the manganese oxide is $\text{Pr}_{0.7}\text{Ca}_{0.3}\text{MnO}_3$. . See at least Fig. 7, for example of ¶ [0003].

Regarding to claims 27, 29, the Admitted Prior Art (APA) discloses a nonvolatile variable resistor comprising: a first electrode (1) and a second electrode (3) facing each other and formed on a substrate (9); a semiconductor switching element (5) formed in the substrate, the switching element being connected to the first electrode; a nonvolatile variable resistance body formed between the first electrode and the second electrode, a composition of the nonvolatile variable resistance body being chosen to facilitate nonvolatility of the variable resistor; wherein the first electrode and the second electrode face each other in a direction of a surface of the substrate, wherein the nonvolatile variable resistance body is formed on an outer surface of the first electrode, and wherein the second electrode is formed on an outer surface of the nonvolatile variable resistance body; wherein the first electrode is a columnar. See at least Figs. 9, 11, for example of ¶ [0005] and ¶s [00013-00014].

Regarding to claims 30-31, the Admitted Prior Art (APA) discloses a nonvolatile variable resistor comprising: a first electrode (1) and a second electrode (3) facing each other and formed on a substrate (9); and a nonvolatile variable resistance body (2), a read-out resistance value of which varies by applying a voltage pulse (V_p) between the first electrode and the second electrode, formed between the first electrode and the second electrode, wherein the first electrode and the second electrode face each other in a direction of a surface of the substrate; wherein the nonvolatile variable resistance body is made of a manganese oxide of a perovskite structure. *See at least Fig. 7, for example of ¶ [0003].*

Regarding to claim 35, the Admitted Prior Art (APA) discloses a memory cell comprising: a nonvolatile variable resistor (R_v); and a selective device (5), connected to the nonvolatile variable resistor, for selecting variable resistor, wherein the nonvolatile variable resistor comprising: a first electrode (1) and a second electrode (3) facing each other and formed on a substrate (9); and a nonvolatile variable resistance body (2), a resistance value of which varies reversibly by applying a voltage pulse (V_p) between the first electrode and the second electrode, formed between the first electrode and the second electrode, and the first electrode and the second electrode face each other in a direction of a surface of the substrate. *See at least Figs. 9, 11, for example of ¶ [0005] and ¶s [00013-00014].*

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5-6, 12-13, 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Prior Art (APA).

With respect to claims 5-6, 12-13, the Admitted Prior Art (APA) disclosed all the limitation of the claimed invention as noted above except for the manganese oxide is any of " $\text{Pr}_{(1-x)}\text{Ca}_x\text{MnO}_3$, $\text{La}_{(1-x)}\text{Ca}_x\text{MnO}_3$, and $\text{La}_{(1-x-y)}\text{Ca}_x\text{Pb}_y\text{MnO}_3$ ". It would have been obvious to a person having skill in the art at the time of the invention was made to form the manganese oxide of the Admitted Prior Art (APA) from any of " $\text{Pr}_{(1-x)}\text{Ca}_x\text{MnO}_3$, $\text{La}_{(1-x)}\text{Ca}_x\text{MnO}_3$, and $\text{La}_{(1-x-y)}\text{Ca}_x\text{Pb}_y\text{MnO}_3$ ", since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *NOTE: for example of at least claim 5 of Liu et al. (6,762,481) cited to support the known position.*

With respect to claim 34, the Admitted Prior Art (APA) disclosed all the limitation of the claimed invention as noted above except for the second electrode is concentric about the first electrode. Forming electrodes that is concentric would have been known and available in the art. It would have been obvious to a person skill in the art at the time of the invention was made to form the second electrode of the Admitted Prior Art (APA) is concentric about the first electrode, since it has been held to be within the general skill that the shape difference are considered obvious and are not patentable unless unobvious or unexpected results are obtained from these

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changes. *NOTE: for example of at least Figs. 2-3 of Watanabe (6,104,055) cited to support the known position.*

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Lam whose telephone number is 571-272-1782. The examiner can normally be reached on 6:00 – 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 571-272-1852. The fax phone numbers for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

D. Lam

April 19, 2007



**DAVID LAM
PRIMARY EXAMINER**